

Grain Grades and Standards in Ecuador

By

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### **Introduction**

Grain grades and standards are an essential component of any modern day marketing system. Grades and standards are increasingly used in developing countries as part of an overall effort to modernize the grain marketing system. Recently the Government of Ecuador decided to improve its grain grades and standards as part of an overall effort to modernize the grain marketing system. Grading and standardization is one of the primary functions of a market system, and is essential for efficient operation of the market for grains. Successful operation of commodity exchanges requires a system of grades and standards to facilitate the trading of grains in an open competitive market. Grain grades and standards permit the buying and selling of products by description rather than a visual inspection of each lot offered for sale. These standards also permit the commingling of grain from many different sellers into a few categories with common characteristics thereby reducing the need for segregated storage. In addition, grain grades and standards provide a method for buyers to estimate the value of a particular lot and to communicate this value to consumers, producers and marketing intermediaries.

The purpose of this report is to assist and assess progress toward the introduction of improved grain grades and standards as part of an Agricultural Policy Reform Project between The Ministry of Agriculture in Ecuador, the U.S. Agency for International Development and the Sigma One Corporation. This report was completed during a two week visit to Ecuador in December, 1985.

### Development of Grades and Standards

Quality is a subjective property describing the usefulness, desirability, and value of a food product. Buyers must constantly judge the quality of products in their purchase decision. Quality standards are commonly accepted properties that differentiate food products in terms of their value to buyers. Grading is the sorting of unlike lots of products into uniform categories according to quality standards. The appropriateness and accuracy of the grading process depend upon the correspondence between the quality standards and buyer and seller preferences, the range of qualities in the marketing system and the relevance of the sorting to consumer choices.

The following are some criteria which should be considered when developing a system of grades and standards:

1. Standards should be built on characteristics the users consider important, and these characteristics should be easily recognizable. Grades must be oriented to user opinion of value and not that of a few technical experts.
2. Standards should be built on those factors that can be accurately, rapidly and uniformly measured and interpreted. If the major part of a standard consists of subjective measurements, uniform application by different graders, or at different points in the marketing system, will be very difficult. Excessive quality variation within a grade reduces the usefulness of the grade itself.
3. Standards should use those factors and a description that will make the grades meaningful to as many users of the product as possible. The ideal situation would be that in which the same grade terminology is used at all levels of the marketing channel from producer to consumer.

4. Each quality grade should include enough of the production to be a meaningful category on the market. Consideration must be given to the quality of the product produced on the farms. The top quality in a grading scale is not useful if very little or none of the actual farm production can meet it.
5. The cost of operating the grading system must be reasonable. Absolute uniformity at any price is not a feasible goal.
6. Grade standards and the quality factors contained therein, should facilitate equitable treatment among all segments of the industry and enable the market system to communicate economic preferences to the point in the marketing chain where the quality can be altered.

#### **Benefits of Grades and Standards**

Grades and standards can lower marketing costs by contributing to increased operational and pricing efficiency in the marketing system. Trading grain on the basis of description of a certain grade lowers the search and transaction costs by eliminating the need for visual inspection of the product. It also contributes to more accurate market information and a more efficient price discovery process. Grading may lower transportation costs by providing clear signals on where to ship the higher valued product and where the lower valued product can be used most advantageously. The use of grades gives consumers specific information with which to signal their preferences to producers and increases consumer sovereignty over the production process. Grades also provide incentives to producers and merchants to improve quality by providing a price differential that rewards a higher quality product more than a lower quality product. Over time the use of grades and standards will improve the general level of product quality in the marketing system.

### Current Situation

Since the present Government of Ecuador (GOE) took office in August of 1984, a number of economic policy changes have been made in an effort to improve economic performance of the general economy and of the agricultural sector. The objective of these changes has been to create a more market oriented economy with minimal Government involvement in economic affairs. In the agricultural sector, these changes include a devaluation of the sucre, trade liberalization, removal of price ceilings on all but a few agricultural products, and improvements in the interest rate structure. In addition, the GOE has proposed that the Empresa Nacional de Almacenamiento y Comercializacion (ENAC), a government owned storage and marketing enterprise, sell its warehouses to the private sector.

An agricultural commodities exchange (Bolsa de Productos Agropecuarios) will also be established so that prices for agricultural products will be determined through bidding between buyers and sellers in an open, competitive market. The pricing function of this commodities exchange will replace the previous system of government administered prices for agricultural products. This agricultural commodities exchange will have the same basic functions as other commodity exchanges located throughout the world. Like other commodity exchanges, this exchange will trade commodities on the basis of a standardized contract rather than trading the physical commodity. Trading of contracts requires a system of grades and standards that accurately describes the quality characteristics of the commodity traded.

An improved system of grades and standards is also necessary for the successful operation of a public and private warehouse system based on negotiable warehouse receipts that can be used as collateral for bank loans or sold in the market place. Negotiable warehouse receipts facilitate the trading of commodities and lower the cost of trading.

In the current marketing system, several quality factors are considered when buying and selling grain products; however, no official grain grades and standards exist at the present time. ENAC, farmers, processors, warehouseman, and traders tend to disagree on the factors that should be considered when measuring quality of product and the relative importance of these factors in determining value of product to the final user.

The GOE has initiated a process to resolve these differences so that official grades and standards can be defined and used by all participants of the marketing system. A committee has been established by the Ministry of Agriculture and charged with the responsibility to define grades and standards for all the basic agricultural products. This committee contains representatives of the farmers, warehousemen, processors and the government sector but does not seem to have a representative from the trader or marketing intermediary group (retailers, wholesalers or assembly). It would seem desirable to also include this group as part of the committee since they will be most important to the successful use of the new grades and standards. A representative from the Instituto Ecuatoriano de Normalizacion (INEN), the official government agency for standards, is a member of the committee which insures that the appropriate procedures for elaboration of the grades and standards will be observed. When the grades and standards committee has completed its work and this work has been

approved by the appropriate government bodies, these grades and standards can be published in the Registro Oficial (Federal Register) and will then be the official grades and standards for the country.

The committee seems to have adequate resource materials to define the grades and standards for the selected agricultural products. These products include rice, corn, soybeans, sorghum, lentils, edible beans, barley, and soybean meal. At a later date other products may be added to this group. In addition to the vast knowledge and experience of the members of the committee with product quality in Ecuador, the committee also has available the grades and standards information from Argentina, Colombia, U.S. Department of Agriculture, Food and Agriculture Organization of the U.N. and the Inter-American Institute for Agricultural Sciences.

The committee members seem to work well together and are making good progress toward the completion of their task. In a relatively short period of time, they have completed a second revision of the grades and standards for rice, corn and soybeans. They will begin work on the other commodities after completing the final version for these three. The committee plans to complete its task in early 1986 so that the plans to open the commodities exchange before June of 1986 can proceed as scheduled.

#### **Rice Grades and Standards**

Five classes of milled rice and rough rice are defined as follows: Class 1, Extra Long; Class 2, Long; Class 3, Medium; Class 4, Short; and Class 5, Mixed. For each of these classes, two grades of rice are defined according to several characteristics as listed in Appendix A, Table 1 and Appendix B, Table 1. These tables are defined in terms of clean and dry rice with a maximum of 14 percent moisture and 1 percent foreign material. Rice exceeding that amount must be dried and cleaned to that level. Several

other factors are also included such as insect damage, heat damage, fungus damage, broken kernels, red kernels, etc. In comparison to the U.S. standards, the Ecuadoran standard is more rigid on the maximum moisture content and foreign material and less rigid on the maximum level of the other factors. More individual characteristics are measured than is true of the U.S. standard for rice. The committee members believe that this is the appropriate standard for them to use given their environment and their production and marketing system. The acid test, of course, will be in the implementation and use of this standard.

#### Corn Grades and Standards

Corn is classified into three types as follows: 1) White or Yellow Hard Corn, 2) White or Yellow Semi-hard Corn, and 3) White or Yellow Soft Corn. For each of these types of corn, three grades are defined as shown in Appendix C, Table 1. This table contains the specifications for broken kernels, heat damaged kernels, fungus damaged kernels, insect damage and total damage. In addition, the corn must be clean and dry with a maximum of 12 percent moisture and 1 percent foreign material and a minimum test weight of 650 grams per liter. The Ecuadoran standard for corn is more rigid on the moisture and foreign material content than the U.S. standard and less rigid on the other factors such as damage. The moisture level is 2 percentage points below what is generally considered adequate for long term corn storage in the U.S.; however, the committee feels that this level is necessary in their environment. The problem with drying corn to that level is the added cost of drying and the increased brittleness of the kernels which leads to higher broken kernel content in the grain handling system. According to some of the users and warehousemen this increased brittleness and consequent damage is already a problem for corn in Ecuador.



### Soybean Grades and Standards

Soybeans are classified into two classes based upon color. Clear soybeans are those with a yellow or green color and dark soybeans are those with a black or brown color. Appendix D, Table 1, shows the four grades defined for soybeans. Soybeans are considered clean and dry when they have no more than 1 percent foreign material and 11 percent moisture. The test weight for soybeans must be a minimum of 640 grams per liter when clean and dry. The other quality factors shown in Table 1 are the limits for broken kernels, splits, heat damage, fungus damage and insect damage. Once again, the Ecuadoran standard is more rigid than the U.S. standard for moisture and more lenient on the other quality factors. Just as in the case of rice and corn, the Ecuadoran soybean standard considers more individual quality factors than do the U.S. standards for these same products. At this point in time, no one knows the percentage of domestic production that will meet the quality standards defined for each of the products. The real test will be in the implementation of these standards. Adjustments will most likely be necessary after some experience has been obtained from the actual use.

### Implementation of Grades and Standards

Defining the appropriate grades and standards cannot be considered an easy task but the actual implementation of these standards will certainly be a much larger task in terms of time, money and people. One important consideration is to decide where to administratively locate the responsibility for implementing the grades and standards. INEN is the official government agency for standards and has the responsibility for a wide variety of food and industrial products in terms of quality standards,

product safety, food inspection, etc. INEN may not be the most appropriate agency for implementation of grain grades and standards given its wide mandate but it certainly must be involved at the policy level.

A second option would be to create an office within the Sub-Secretariat of Marketing in the Ministry of Agriculture to supervise the implementation of the grades and standards. This has the advantage of being closer to the industry that will be using the grades and standards. Such an office could be similar to the Federal Grain Inspection Service of the U.S.D.A.

A third option is to create an office that is attached to the proposed agricultural commodities exchange. This may be the most advantageous because the commodities exchange will be dependent upon the successful implementation of the grades and standards. Trading of contracts on an exchange cannot succeed without an appropriate system of official grades and standards for the commodities to be traded. This also has the advantage of placing the responsibility for the implementation of the grades and standards close to the users of the information, that is, the traders and merchants. They, more than anyone else, have an interest in a system of grades and standards that meets the criteria mentioned in the beginning of this report.

The basic functions of this office, wherever it is located, should include the following"

- Educate all participants in the marketing system on grades and standards

- Publish information of grades and standards

- Train the people who will grade the commodities

- License the commodity graders and supervise the performance of the services

- Serve as the final authority in the settlement of grading disputes

Provide uniform measures of quality

Insure that grading equipment is properly used, maintained and calibrated

Evaluate use of the grading system relative to the proposed objectives and recommend changes when appropriate.

To perform these functions, the office is going to need resources in the form of well trained people and modern grading and testing equipment. Several people must be trained in grain grading and sampling procedures so that they in turn can train all the public and private sector people who will become the licensed grain graders in the country. Short term training in country as well as training and observation in countries such as Colombia, Argentina, and the U.S. should be planned for the people of this office.

An inventory of the number, type and condition of grain grading and sampling equipment in the country is needed to determine how much sampling and grading equipment is needed throughout the country. In many of the storage facilities there may be an opportunity and a need to introduce modern sampling and grading equipment.

Some vehicles will also be needed for this office and some additional short-term consulting may be needed as the grades and standards are implemented.

### Conclusions

Ecuador is making excellent progress toward a system of grades and standards for the basic grain products of the country. The committee established to develop the grades and standards contains representatives from all the marketing participants except those from the retail, wholesale and assembly level. Efforts should be made to also involve these partici-

pants in the process of developing the grades and standards. The committee has strong, dynamic leadership that has enabled it to move forward rather quickly on defining the standards for rice, corn and soybeans.

The grades and standards that are defined consider all of the basic quality factors such as moisture content, foreign material, heat damage, insect damage, fungus damage, broken kernels, etc. for the commodities in question. At this stage it is difficult to know how the farm production will fit the defined standards. There is some danger that the standards consider too many factors and are too rigid on some of the limits for the actual conditions of the country. If this does turn out to be a problem, the grades and standards can always be adjusted at a later date.

Defining the grades and standards is the easy part. Putting them into actual use will be a large and time consuming task. It will not happen easily and will not happen over night. Creating an administrative unit to begin the implementation of these grades and standards is an important next step in the process. As mentioned above, this unit could be a part of the Ministry of Agriculture or a part of the commodities exchange. The exchange might be the preferred choice because of its private sector and trader involvement.